Radiative Transfer Modelling of Rotational Modulations in B Supergiant HD 64760

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We develop parameterized models for the large-scale structured wind of blue supergiant HD 64760 (B0.5 Ib) based on best fits to Rotational Modulations and Discrete Absorption Components (DACs) observed with IUE in Si IV λ1400. The fit procedure employs the WIND3D code with non-LTE radiative transfer (RT) in 3-D. We parameterize the density structure of the input models in wind regions (we term 'Rotational Modulation Regions' or RMRs) that produce Rotational Modulations, and calculate the corresponding radial velocity field from CAK-theory for radiatively-driven rotating winds. We find that the Rotational Modulations are caused by a regular pattern of radial density enhancements that are almost linearly shaped across the equatorial wind of HD 64760. Unlike the Co-rotating Interaction Regions (CIRs) that warp around the star and cause DACs, the RMRs do not spread out with increasing distance from the star. The detailed RT fits show that the RMRs in HD 64760 have maximum density enhancements of $\sim$17% above the surrounding smooth wind density, about two times smaller than hydrodynamic models for CIRs. Parameterized modelling of Rotational Modulations reveals that nearly linear-shaped (or 'spoke-like') wind regions co-exist with more curved CIRs in the equatorial plane of this fast rotating B-supergiant. We present a preliminary hydrodynamic model computed with ZEUS3D for the RMRs, based on mechanical wave excitation at the stellar surface of HD 64760.